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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,752	11/08/2001	Yee Loy Lam	774-010704-US(PAR)	2535
2512	7590	03/22/2005	EXAMINER	
PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			PETKOVSEK, DANIEL J	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	Applicant(s)	
10/006,752	LAM ET AL.	
Examiner	Art Unit	
Daniel J. Petkovsek	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on appeal brief filed December 1, 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 5, 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

In view of the appeal filed on December 1, 2004, and especially in view of further search, and the consequent upturn of relevant prior art documents, a new rejection is set forth below. The finality of the office action mailed March 26, 2004 has been withdrawn. This action, with the rejections of claims 2-11, is made NON-FINAL.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Medin et al. U.S.P. No. 6,760,520, and further in view of Lee U.S.P. No. 6,411,764.

Medin et al. U.S.P. No. 6,760,520 teaches (ABS, Fig. 5, column 7, line 24, through column 8, line 7) an optical bench 500 for coupling light between an optical device 505 and an optical fiber 525, the optical bench 500 having at least a portion of unitary construction comprising an integral optical spot size converter 200 (also see column 2, lines 15-22) and optical alignment means 540 for fixing the position of an optical device that can be initially separate relative to the spot size converter 200 in order that light is coupled between the optical device 505 and the spot size converter 200.

Medin et al. '520 does not *explicitly* teach (in independent claim 3) that the spot size converter comprises a pair of waveguides (or that the upper waveguide has a reduced lateral

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taper (independent claim 4)), at least one of which is dimensioned to cause light to couple from one waveguide to the other as light propagates along the waveguide.

However, in the optical waveguide art, spot size converters are well known to have a number of forms that include two or more waveguides. For example, Lee U.S.P. No. 6,411,764 teaches (ABS, Figs. 1, 2A, 2B, column 5, lines 5-21) a double core spot size converter that has two waveguides, separated by a spacer region, at least one of the waveguides dimensioned so as to cause light to couple from one waveguide to the other as light propagates along the length of the waveguide.

Since Medin et al. '520 and Lee '764 are both from the same field of endeavor, the use of the general knowledge in the art of any plurality of configuration of spot size converter (from Lee '764) would have been recognized in the pertinent art of Medin et al. '520.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the spot size converter taught by Lee '764 (and other spot size converters that are well known in the art) in the integral optical bench of Medin et al. '520, for the purpose of improving optical coupling and efficiency between an optical device and an optical fiber.

Regarding claim 2, the bench is formed of silicon (column 2, lines 22-25).

Regarding claim 5, the spacer 8 (of Lee '764) acts as cladding.

Regarding claims 6 and 7, the optical bench is adapted to receive and align the optical device, and is "keyed to engage" in order for correct alignment.

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Regarding claims 8 and 9, see the V-groove (trench) and proper alignment of device 505 (Figure 5 of Medin et al. '520).

Regarding claim 10, light is coupled between the optical device and the optical fiber (by use of the spot size converter).

Regarding claim 11, the Medin et al. '520 reference teaches a semi-conductor laser diode as the optical device. The reference does not explicitly teach an "edge-emitting" waveguide device. However, edge emitting devices are a well-known for use as laser diodes in the art, and it would have been obvious to a person having ordinary skill in the art to use (or modify) an optical bench such as the bench described by Medin et al. '520 by implementing an edge emitting waveguide device for efficiency source coupling. Official notice has been taken.

#### *Inventorship*

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

#### *Response to Arguments*

4. Applicant's arguments, see appeal brief, filed December 1, 2004, with respect to grounds of rejection to claims 2-11 to Zhou et al. '118 in view of Lee '764 have been fully considered and are persuasive. The rejections to claim 2-11 to Zhou et al. '118 in view of Lee '764 have

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been withdrawn. In particular, please note [0025]-[0026] in the Zhou et al. '118 reference. Zhou et al. '118 states that it would be difficult and expensive to integrate such a structure, due to large differences in coefficients of thermal expansion of the materials and mechanical (in)stabilities.

5. New rejections have been made to claims 2-11 to Medin et al. '520, and further in view of Lee '764, under 35 U.S.C. 103 (a), and fully addressed above. As such, this office action is made **NON-FINAL**.

6. In view of the arguments filed on December 1, 2004, and with the approval of the SPE Rodney Bovernick (MPEP 1002.02(d)), PROSECUTION IS HEREBY REOPENED. The following is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

### *Conclusion*


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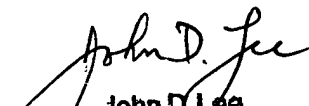
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of integral spot size converters: PTO-892 form reference B (to Ambrosy et al.).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Petkovsek whose telephone number is (571) 272-2355. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel Petkovsek  
March 18, 2005

  
John D. Lee  
Primary Examiner